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In order to help the child develop his creative potential, it is necessary to understand (1) what personality characteristics distinguish the potentially creative child from the average child and (2) what environmental conditions, if any, facilitate the development of creative behavior. Research on the contribution of attitude, temperament, and environmental climate in nurturing the creative potential of the young child is small. Some trends, however, do appear in the existing studies, especially adult studies in which not only the personality of the creative individual is explored, but his childhood is reexamined. Although the relationships between childhood experience, personal attitudes, and creativity often appear inconsistent and even contradictory across individuals, it has been shown that creative people often (1) have great confidence in themselves, (2) are introverted and withdrawn, (3) are very intellectually curious, (4) are nonconforming and independent, (5) had a pleasant but not necessarily close relationship with their parents, (6) did receive support, respect, and relative autonomy from their parents, and (7) were allowed early to exercise their own judgment within limits of consistent discipline. (WD)

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HELPING THE CHILD DEVELOP HIS CREATIVE POTENTIAL[1]

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In his very recent paper entitled, "Childhood Variables and Adult Personality in Two Professional Samples: Architects and Research Scientists", Donald W. MacKinnon, Director of the Institute of Personality Assessment and Research at Berkeley, writes that, "I shall have most to say about motivational dispositions, for in our many studies of creatives it is such broad traits of personality that have most clearly and significantly differentiated our more creative subjects (viz., architects, writers, poets, engineers, scientists and artists) from their less creative colleagues." Moreover, he adds, "Even though I seem to be implying that they alone are the important determinants of creativity, let me hasten to point out that intellective and cognitive skills and abilities and the fostering of them are also of greatest significance".

Certainly these two sets of intrapersonal variables dealing with attitudes and temperament as well as certain specific thinking skills are central to the development or release of creative potential. I would also argue very strongly that another set of extrapersonal variables to include environmental situations or climate factors likewise do facilitate or hinder creative behaviors. My task today is to discuss what is known about the interactional complexities of all three variables for nurturing the creative potential of the young child.

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young child.

As we all know there is a growing body of evidence that childhood training and experiences prior to formal schooling and during the primary grades; that is, throughout the three lower stages of Piaget's theory of intellectual development; namely, sensory motor, pre-operational, and early concrete operations stages are becoming increasingly recognized as vital to the future behavior and creative development of the individual. Among the many studies dealing with the cognitive domain in young children, Bruner and others report that up to 50 percent of the total cognitive development of an individual takes place before the age of five. Modes of thinking of young children, at least in the areas of language, perception, and thinking related to convergent production are fairly well established by the age of eight or nine. Little is known, however, about strategies, styles, skills or abilities calling for thinking related to divergent production which research indicates may be undoubtedly most crucial and yet most neglected in the development of the young child's creative potential. We are not well informed as to the relative effects of parents and an optimum home environment upon the child's development with respect to those personality correlates of independence, curiosity, imagination, spontaneity, originality, sensitivity, fantasy and many others which play important roles in nurturing or thwarting the creative potential of the child. We are indeed in very serious lack of solidly established data concerning longitudinal studies on the long-range effects of child-rearing practices for developing that potential every child has for becoming creative. This subject is certainly very barren and highly speculative.

Being cognizant of this need, our project initiated plans for and sponsored late last Fall a national invitational research conference on child-rearing practices for developing creativity in the home and during the early school life of the child. This was a closed conference attended by ten leading child psychologists, nationally renowned creativity researchers who have worked with young children, and professional educators eminent in the field of child guidance. Although at the present time we are still editing the some twenty-five hours of conference transcriptions for preparation of a research monograph and a book as an outcome of this conference, I am able to tentatively report today upon some of these findings as well as upon some of the clues or speculations about future research needed in this very complex and diverse area.

Let me start by briefly discussing the traits and characteristics of eminently creative adults since they have been the subject of numerous studies. Much less work in this direction has been done with children simply because of the difficulties involved with measurement problems and the lack of assessment devices as well as criteria one would use in identifying such traits among younger subjects. Studies of adult groups involving high creatives instead of middle or low creatives have been more prevalently conducted, since analyzing those possessing the most allows the researcher to determine more clearly how creativity works. Information obtained in such adult studies has been in the form of retrospective reports of childhood experiences at home in relation to parents, siblings, and extended family members; as well as experiences in school with peers and teachers, outside forces and persons, and situations which

as the person saw it nurtured his creativeness. From these numerous studies many inferences can be drawn as to the effects of early life experiences.

It appears that the highly creative person is as complex as the creative process itself. There seems to be no single and consistent picture which researchers can draw as a prototype of the high creative. In fact, if one carefully scrutinizes the long list of traits that characterize the highly creative individual, one finds many contradictions and incongruities among them. It is erroneous to assume that there is one stable set of characteristics to be considered when studying the highly creative individual or attempting to develop creative behavior. Set pre conceptions about his or her abilities are one reason parents and teachers have difficulty in identifying and understanding those children who possess considerable creative talent. When attempting to deal with personality and intellectual problems, parents and teachers should be aware of creative childrens frequent inconsistencies and contradictions in character and behavior.

Instead of considering a long list of traits and characteristics as attributes of the high creative, I shall deal with what I call a caricature of paradoxes showing the adult, as well as child, behaving this way as well as that way. For example, the highly creative person has two co-existent, yet often conflicting value systems. One is based on aesthetic considerations and leads the person to solutions, acts, products, or ideas that are beautifully constructed or elegantly elaborated. The other value system stresses functional practicality, cost, and workability. A highly creative individual

may seek a beautiful, embellished solution or product while at the same time requiring it to be useful, feasible, and practical.

Other traits of creative people are a strong sense of self-destiny, unusual confidence, independence, and autonomy in what they attempt to do. They do not want to adapt to a situation or organization as much as they want to create their own system or organization. They know what they want, where they are going, and how to get there. Yet, these are people who are very sensitive and vulnerable to criticism, introverted and withdrawn, and often psychologically maladjusted. Even so, Barron (1963) reports that such individuals have far more inner resources psychologically to accommodate their maladjustment than does the less creative person.

Another inconsistency found in the highly creative individual is that while he recognizes his talents and senses that he is different, he needs more recognition, thrives on a higher sense of achievement, and must have greater personal approval of his accomplishments than the person who is less creative. In our work with pupils in elementary school classrooms on reinforcement of creative behaviors (Williams, 1964), a study revealed that the usual kind of recognition given in the classroom, such as grades on papers or classroom exercises, had no effect upon the originality scores of groups of reinforced, sixth-grade pupils as compared to matched, non-reinforced control groups. The result implied that a child of greater creative potential possesses a self-initiated achievement orientation, and yet has a great need for personal approval of accomplishment which demands that the teacher recognize

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him in a more intimate manner than might be adequate for the average or less creative child. The highly creative child, as well as adult, has as Starkweather writes, a non-compulsive non-conformity in that he is not compulsively different as much as he just can't help being different. The majority of high creative children are looked upon by others as being obnoxious; but being obnoxious is not a by-product of being creative as much as it is a defense mechanism against what is done to them because they are creative.

Still another inconsistency among traits of highly creative people lies in their somewhat ambiguous relation to information, fact, and accepted knowledge. The highly creative person thrives on information, has an insatiable curiosity for facts and details, and delights in challenging problems. If his environment or life situation does not pose enough problems for him, he will go out of his way to create his own. Yet, despite this involvement, the creative person can become detached from the factual information he has gathered in order to incubate new approaches, explore his intuitive feelings, or thrust out into innumerable directions that lie on the fringes of the unknown in order to solve his problems. Creative students know how to handle information imaginatively and they learn the skills of thinking in terms of dynamic possibles and probables rather than static certainties and permanencies. The highly creative individual is an intelligent doer and roamer, not a mere sponge-head; he thrives on factual knowledge but remains flexible in being able to wonder how one thing leads to another.

The person possessing great creative potential has a high tolerance for ambiguity and chaos. He remains perceptually open and will resist premature judgments, is very well-disciplined in

the way he thinks and quite persevering; but there comes a time when he must force closure to move on. From studies of creative children, reports indicate that they come up with their most creative ideas or act most imaginatively when they set out to straighten up an uncertain situation. Ambiguity and uncertainty become a means to an end for breaking new boundaries or lifting oneself to a new and higher order.

It has often been observed that highly creative school children become bored rather quickly with the discovery method; especially if they are expected to discover something that is not of immediate use to them. Discovery for discovery's sake does not seem to encourage the creative process. Creative children usually know what they want and have an abundance of ideas for getting there. Thus, they prefer the teacher who gives them facts and information with freedom and opportunity to set their own problems and find their own solutions; rather than having to discover an established answer to a problem set for them. A parent and a teacher can provoke real problems with creative children both by ignoring their peculiar approach to knowledge and problem-solving, and by imposing standard rewards on them, rather than encouraging them by means specifically attuned to the inconsistencies of their creative natures.

In one study conducted several years ago, to my knowledge the first and only one of its kind, Weisberg and Springer (1961) selected a group of gifted children who also exhibited high creative abilities upon a battery of tests designed to assess creative thinking. Parents of this selected group of children were also tested

and interviewed extensively in attempts to find whether particular kinds of families had children with particular levels of creative potential, and to elicit significant and relevant factors in family life which might have contributed to the child's creativity. Their results indicated that their are certain family characteristics related to creative performance of children. The findings favoring the emergence of creative potential among these children were: a responsive and expressive family climate coupled with complexity, mobility, and uncertainty; a richness of encouragement, recognition, respect, and emotion support for questions, manipulations and unusual thinking; allowance for comfortable regression throughout the growth patterns of the child with occasional regressive behaviors on the part of the parents themselves; a lack of dependency of each parent on the other, on the marriage, or on the family as a means of reinforcing individual status on his or her own security as an individual. Other findings reflected ways in which the family setting facilitated the creative behaviors of these children. One characteristic pattern found was an openness of exchange and active interaction between two well-defined but autonomous adult personalities with the better defined personality in the eyes of the child tending to be that of the parent of the same sex as the child. These researchers concluded it was as though these parents had both adequately settled the question of who and what they are, and although this knowledge was painful and anxiety provoking at times, they did not turn aside from it. Instead they overcompensated for it with frequent and open hostility in the homes of these high creative children. Within this setting, however, the family was found to

stimulate but did not dominate. It was likewise found that these creative children favored reliance on defense mechanisms other than withdrawal and repression as a primary means of dealing with chronically anxiety-producing situations in the home.

Other studies provide us with this additional list of traits and characteristics relevant to high creative children; they are not well-rounded particularly in verbal abilities; they may have difficulty in learning to read and write at the normal rate of less creative children; and they are usually viewed as late maturers. All of these behaviors can be explained by inferences drawn from adult studies showing that the high creatives attempt to go so many places at the same time they just don't settle down to the normally accepted routines set by the less creative majority.

The child possessing greater creative strength regardless of its sex prefers to learn independently on his own without working with others; likes to attempt difficult and challenging tasks; is intrigued with complexity; loves to take risks, and cannot stop manipulating, making inquiries, or being curios. This child has a vivid imagination and is guided by his inward hunches, intuitive nudges, and sensitive emotional feelings. No wonder, then, that identification of sex roles of the creative child are so confusing; since, in our society boys are supposed to be independent and girls are supposed to be sensitive. Instead, creative boys are sensitive with the result of being viewed effeminate, and creative girls are independent with the result of appearing masculine.

One may indeed question what clues can be gleaned from this complex and inconsistent portrait of the highly creative adult and child which perhaps can provide generalizations for other

groups not so creative. From his work with three groups of architects, MacKinnon (1967) demonstrated striking differences between them with respect to events, situations, and interpersonal relationships in their early life histories. The three groups of architects he studied were drawn from a nation-wide sample and divided in the following three ways: (See Figure I.)

IPAR STUDIES

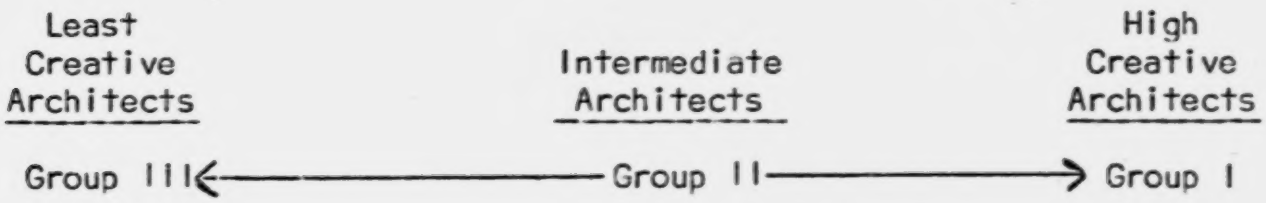

FIGURE I

Group I architects were individuals who had been nominated by a panel of experts as being the most creative architects in the country at the time of the study. Group II architects were matched with Group I in age and geographic location of practice and had worked at least two yars in association with one of the Group I creative architects. Group III, also matched with Group I in age and location of practice, were architects that had never worked for nor been associated with any of the nominated high creative architects comprising the first group. Thus, three sub-samples of architects were selected and studied with the assumption that Group III would be on the average least creative of the three groups; Group II would possess a level of creativeness intermediate between Group III and Group I; while Group I was considered

to be outstandingly productive and creative. If one considers a continuum made up of two polarities of dispositional and psychosocial variables, the study shows differences along this continuum where Group I, the high creatives would be placed; Group II the intermediate creatives would be placed; and Group III the least creative architects would be placed.

As one considers these differences along this continuum moving from the position of Group I to Group II to Group III, one finds evidence of increasing socialization, conformity to social norms, and a blending of the intermediate groups to a losing of the low group of one's individual identity. Conversely, as one moves in the opposite direction from the position of Group III through Group II to Group I there appears to be increasing evidence of psychological development, richness, and complexity of personality. The study points out that differences between Groups I and II are not as sharp and clear as those between Groups II and III.

Since these differences between groups appeared to be quite distinct, it then seemed possible to equate circumstances in early years, as given by self-reports, which conceivably could have contributed to the differences which so markedly occurred. One such difference which was the most salient factor between Group I and Group III was that of an attitude of basic trust on the part of the parents toward their sons who became outstandingly creative architects. An attitude of trust, tremendous respect, and confidence in the ability of the child to do what was reasonable in a responsible way was paramount among the parents of Group I architects. Their

parents granted them at a very early age, as well as late, rather unusual freedom in exploring their life space and an autonomy in making their own decisions. The parents let it be known to the child that they expected him to act independently, reasonably, and responsibly; and, this appeared to have contributed greatly to the creativeness which later in adult life manifested itself to a very high degree. It became obvious that this basic trust in the child permitted him to move more easily toward separation from the parents and some measure of individuality in later life without experiencing guilt and rejection.

The achievement of separation was also made easier because there often were reports of a lack of intense closeness with one or both parent; especially, in the child's relationship with the father. There were apparently no strong positive emotional ties between parent and child; but neither were there any negative emotional injunctions; so that there occurred no relationship that fostered over-dependence nor severe rejection. MacKinnon reports that: "If the child lacked something of emotional closeness which some children experience with their parents, the child was also spared any type of psychological exploitation that is so freely seen in the life histories of clinical patients. The tendency was that usually the highly creative architect identified either with both parents or with neither."

Another parental pattern of significance that differentiated Group I high creative architects from Group III low creative architects was the high incidence of distinctly autonomous mothers among these families. This same finding was apparent in the Weisberg-

Springer Study, where mothers of high creative children led active lives with careers and interests completely apart from their husbands.

Still another factor which appeared in the architects study but did not appear in the Weisberg-Springer Study was the suggestion that within the family of high creatives there existed very well defined standards of conduct and discipline with no doubt left as to what was right and wrong, but with many expectations as well as requirements for active exploration and internalization of the child's structure of personal conduct. We are not talking about marked permissiveness, the great American neuroris, but about discipline that was consistent and predictable. There were rules and standards which were seldom infringed upon by children.

The parents as well as the home environment which they created did not demand but always encouraged achievement; the kind of achievement motivation climate that McClelland writes about in which there was an expectation for excellence in accomplishment along whatever path the child chose.

As analogous to the formerly cited study by Weisberg and Springer, the high creative group of architects denoted frequent movement within the community, from the community, and even across countries; mobility of the family occasioned by death, separation, or divorce with accompanying emotional distress for the child; the recurrent theme of an unhappy childhood; a family environment free from an anxious attitude without neurotic concern for the child; but with structure and a multitude of opportunities for complete freedom in developing as the child will at whatever pace he chooses.

In a completely different approach but with a striking congruence of findings concerning parent attitudes toward their children, Roe reports upon her factor analytical study of the Parent-Child Relations Questionnaire, known as the PCR (Roe and Siegelman, 1967), and correlational studies between the PCR and Cattell's 16 Personality Factor Questionnaire (16 P F). There has been extremely significant agreement between three orthogonal factors found on the PCR for different samples varying considerably in age, socio-economic background, and geographical location, which indicates marked consensus on the way parents behave as seen by their children. These factors are (See Figure 2) loving-rejecting, which anybody who studies children finds, casual-demanding, and protecting-neglecting.

PCR
PARENT CHILD RELATIONS

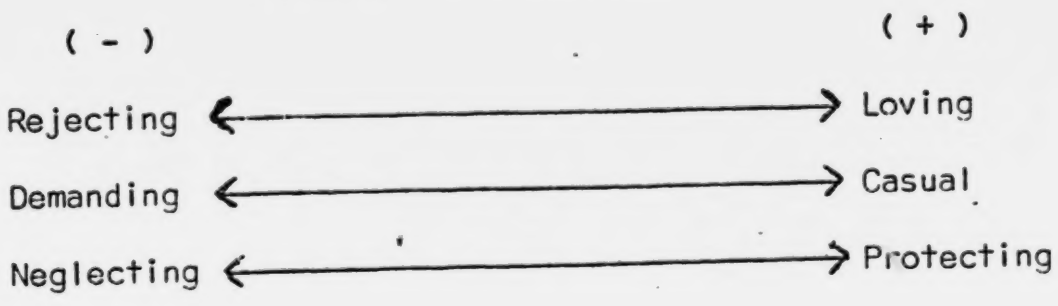

FIGURE 2

High positive loadings were found on the loving, casual scales and low or negative loadings on the rejecting and neglecting scales. The implications from these findings in her work describing natural scientists show that these are introverted, independent people whose relationship with their parents were generally pleasant, with a common attitude of great respect towards the father, but no real

closeness. The high loadings on loving-casual scales indicate parents and early family attitudinal experiences as being caring but not intruding; the child was supported but not intruded upon. Other studies using the PCR for determining parent-child relations have shown both protecting father and mother yielded negative correlations with leadership and initiative; protecting mother a negative, and loving father a positive correlation with popularity.

The relevance of these suggestions in terms of parental behavior relates to other studies of high school students who earn top recognition and awards in science fairs. Anecdotal data reveal that such children often had a special place at home where they could work alone which was supported by their parents in terms of funds for equipment and books as well as plenty of encouragement, but leaving them alone and keeping "hands off". Dr. Roe continually uses the term "intrusive" and writes, "it seems to me that the moral of our findings is to see that the child gets enough to eat, an occasional laugh, a few other things, and leave him alone."

When the six factors of the PCR were correlated to a creative personality profile as measured by the 16 PF on the assumption that Cattell's factors do bear some measurement of creative temperament and disposition, and the PCR factors do bear some agreement as to parent-child relations in early years, the following results were obtained. (See Figure 3, page 16). Considerable consistency was found with regard to the loving-rejecting factor and three of the ten personality factors contributing to creativity. On one personality factor measuring two poles of a continuum between being warm-hearted and participating versus reserved, and cool; the PCR

16 PF
PERSONALITY FACTORS

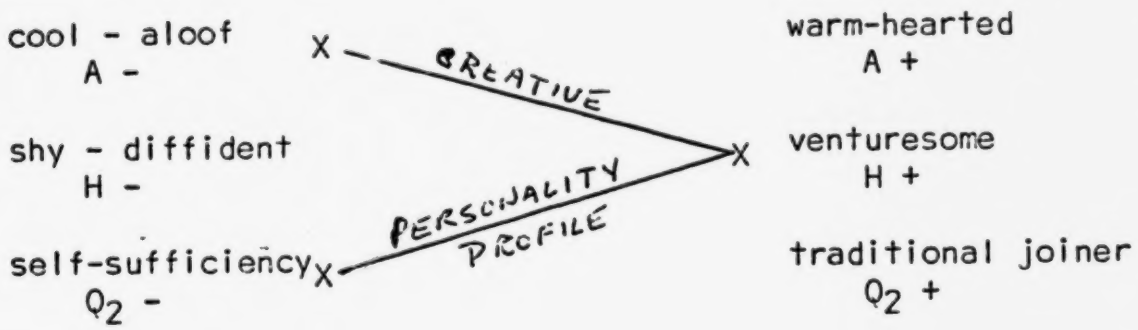

FIGURE 3

indicated that loving parents produce children who are on the warm-hearted participating end of this A - dimension which is in opposite polarity from that of a creative personality. On the contrary, a creative person is aloof, cool, likes to work alone, and avoids compromise with others. The people who reported on the PCR as seeing their parents rejecting or neglecting when they were children tended to have these traits of the creative personality with respect to this factor.

A second personality variable again conducive to creativity showing significant correlation with the loving-rejecting factor in favor of loving was that of being venturesome, impulsive, active and carefree, H +. A number of studies of children and monkeys have shown that a supportive and affectionate family background is a significant factor in the development of freedom to explore and be venturesome.

The third factor of personality relating to creativity indicates self-sufficiency and resourcefulness, Q_2 - . This obviously necessary

trait for a creative person shows him as resolute and accustomed to making his own decisions alone. Here, as in the first factor, we have a clear picture that neglect and/or rejection produces more self-sufficiency and loving produces less. Roe draws these final conclusions regarding these date; too much love and too little neglect do not produce cool, reserved, self-sufficient, resourceful people prone to be creative. She however adds, "Appropriate parent-child relations are, of course, only part of the story but they do provide the soil in which freedom and motivation to inquire and create can develop".

I should in passing comment upon our own two recent studies with attempts to cross-validate a creative personality profile by use of the 16 PF on University of Minnesota undergraduates and the Children's Personality Questionnaire (CPQ) on third and fourth grade parochial school pupils with creative thinking skills as measured by the Figural and Verbal Torrance Tests of Creativity. We were asking the question if a personality test measuring creative disposition could replace the creative thinking test for measuring and predicting creative potential, since the latter test is so subjective and difficult to score. Much to our disappointment, and I am sure that of parents and teachers as well, we found absolutely no significant correlations between any of the creative personality factors and measures of fluent, flexible or original thinking among our two sample populations. Therefore, we conclude that both tests must be measuring different things; a personality profile taps disposition and temperament which could lead to creative output, whereas the creative thinking test measures actual performance on those tasks which supposedly require the person to think divergently. Of course,

the question of validity still remains unanswered as to whether a timed creative thinking test adequately motivates the person to creative production, does it really measure creative potential, and can it be scored objectively enough for adequate analysis.

In closing, may I leave for the teacher, the counselor, the school psychologist or the administrator hints from our conference proceedings and our work with the National Schools Project as to what they might do to encourage and stimulate creativity among children and other teachers. Allow me to merely list these ten items as follows:

1. Because creative children like to engage in tasks that are challenging, want to dig in and have a very strong willingness for complexity; the teacher, the curriculum, and the classroom must be responsive, creative an optimum degree of stress, provide a multitude of opportunities in a lush environment for the child to adapt to a variety of situations, and allow the child to impose his own structure of learning strategies.
2. In terms of the role of structure in the child's cognitive development, research indicates he is better able to function in those mental processes which are vital to creative developmentconly in situations which are relatively free of externally imposed structure and strong stimulus properties. This certainly has a serious implication in the design of educational soft and hardware, programmed instruction, and the kind and way that media is used for evoking divergent thinking.

3. Since creativity implies a flexible or shifting pattern of thinking, the teacher can no longer remain uninformed about the cognitive development of the child and the realization of the constraints placed upon him because of his narrow cognitive structure which may block flexibility.
4. Playfulness, humor, curiosity, and imagination used simultaneously with knowledge acquitision and assimilation may turn out to be the most important ingredients for learning.
5. Two main tasks of equal importance for the classroom teacher involve imparting knowledge through certain structured strategies by presentation of the concrete world in reality; and encouraging the pupil to use such knowledge through other kinds of unstructured strategies. Both tasks require two different sets of talent and abilities; neither can be neglected.
6. In our rapidly changing world it may become necessary to teach children at an early age how to tolerate a large number of conflicting opposites and the function of change in dealing with stress.
7. The teacher's role is becoming more and more that of the diagnostician who must be continually alert with a high order of insight for interpreting the child's behavior.
8. The teacher as well as the parent must guard against understimulation of the mind by giving the child <u>too few causes</u> to think.
9. The classroom teacher must learn how to handle a variety of teaching strategies in coping with the new dialogue of education.

10. The superintendent, curriculum supervisor, and building principal must make allowances for the courageous creative teacher or child who risks venturing past the edges of the familiar or who have an intellectual toughness to reach beyond artifical boundaries.

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